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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/033,726

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Angelo Dati

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08/20/2004

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EXAMINER

RODRIGUEZ, GLENDA P

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 08/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 10/033,726 | Applicant(s) DATI ET AL. | |
| | Examiner Glenda P. Rodriguez | Art Unit 2651 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 12 and 14-16 is/are allowed.
- 6) ☒ Claim(s) 9, 13 and 17 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract is objected to because of the phrase: "said encoded word".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9, 13, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over "codes for Improved Timing Recovery in PR4 and EPR4 Magnetic Recording" by McLaughlin et al. in view of Aziz (US Patent No. 6, 606, 728).

Regarding Claims 9 and 13, McLaughlin et al. teach an encoding and decoding process comprising:

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Receiving a pattern signal that includes a plurality of groups of four bits (Page 1236, 1st Col, 3rd paragraph. McLaughlin et al. teach a method that teach encoding decoding a 4/5 code, which means it receives a 4 bit code and converts it to a 5 bits.);

Encoding each group of four bits of the pattern signal to a five bit code including a fifth final parity bit (Page 1236, 1st Col, 3rd paragraph. McLaughlin et al. teach a method that teach encoding decoding a 4/5 code, which means it receives a 4 bit code and converts it to a 5 bits.);

Even though it teaches a 4/5 rate encoding/decoding scheme, McLaughlin et al. fails to teach a biphas encoding scheme in order to record servo data into the hard disk and reading form the hard disk in order to extract positioning information from the head. However, this feature is well known in the art as disclosed by Aziz, wherein it teaches a M/N rate encoding/decoding scheme for servo data which is used to locate the head with respect to the medium and a decoding scheme using a trellis partial response diagram (Pat. No. 6, 606, 728; Col. 2, L. 1-5 and L. 41-45 and Col. 7, L. 1-10, 20-60 and Col. 9, L. 59 to Col. 10, L. 20. Aziz teach that the method for 2/6 and 2/8 rates, but also discloses that this method could be applied to other rates, which in this case would be a 4/5 rate. Aziz further teaches the use of biphas encoding scheme which a 1 is represented by 1100 and a 0 is represented by 0011, used for encoding and decoding servo data for a magnetic medium. Aziz teach the use of a SAM (or servo address mark) in order to locate the head with respect to the disk location (i.e. positioning information) by reading track/sectors from the magnetic medium. See Col. 1, Line 66 to Col. 2, Line 12 of Aziz, wherein Aziz describes the sector (angular) and sector address mark (radial location) information.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to

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modify McLaughlin et al.'s invention in order to utilize a M/N encoder, decoder because it further improves coding gain in the medium (Pat. No. 6, 606, 728; Abstract).

Apparatus Claim 17 is drawn to the apparatus corresponding to the method of using same as claimed in Claims 9 and 13. Therefore apparatus Claim 17 corresponds to method Claims 9 and 13, and is rejected for the same reasons of obviousness as used above. McLaughlin et al. teaches 4/5 rate encoder and decoder device. McLaughlin fails to teach a biphas encoding scheme in order to record servo data into the hard disk and reading from the hard disk in order to extract positioning information from the head. However, this feature is taught by Aziz, wherein it teaches a M/N encoding decoding scheme (although it can be used in different rates as disclosed by Aziz in Col. 7, L.1-10) for a magnetic medium utilizing a biphas coding scheme (Col. 2, L. 40-45 of Aziz) in order to record servo data, which aids the head into identifying its current location on the medium (Col. 1, L. 66 to Col. 2, L. 12 and Col. 7, L. 1-60), which is a structure which employs the method as disclosed on Claims 9 and 13 by the Applicant.

Allowable Subject Matter

Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the primary reason for allowable subject matter is the inclusion of the limitation wherein each four bit group $\{X_0 X_1 X_2 X_3\}$ is encoded in a five bit code $\{X_0 X_1 X_2 X_3 X_{p4}\}$ with x_{p4} defined:

$$X_{p4} = \left[\sum_{i=0}^3 X_i \right] \bmod 2; \text{ with } X_i = 0 \text{ or } 1.$$

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Claims 1-8, 12, 14-16 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding Claims 1, 12 and 14, the primary reason for allowance is the inclusion of the limitation wherein providing a duplicated bit for each bit of the six bit code word obtained in the previous step.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. "Turbo Codes for PR4 and EPR4 Magnetic Recording" and McPheters et al., "A Joint Source/Channel Coder Design" to Liu et al., JP 09-238306 to Naoki et al., US Patent No. 5, 777, 566 to Shimoda, and US Patent No. 5, 661, 760 to Patapoutian et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703) 305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (703) 305-0400. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


gpr
August 2, 2004.

Primary Examiner
Hilary
for SPE S. Tsao